

SECURITY INFORMATION
CENTRAL INTELLIGENCE AGENCY

RESTRICTED

INFORMATION FROM

FOREIGN DOCUMENTS OR RADIO BROADCASTS

CD NO.

COUNTRY USSR

SUBJECT Economic; Technological - Diesel tractors

DATE OF INFORMATION 1951

HOW
PUBLISHED Monthly periodical

DATE DIST. 14 Mar 1952

WHERE
PUBLISHED MOSCOW

NO. OF PAGES 4

DATE
PUBLISHED Oct 1951

LANGUAGE Russian

SUPPLEMENT TO
REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT 50 U. S. C., 31 AND 32, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE Mashino-Traktornaya Stantsiya, No 10, 1951.

SOVIET INDEXES FOR REGULATING THE FUEL APPARATUS OF DIESEL TRACTORS

The following tables give comparative control characteristics for the fuel apparatus of the S-65, S-80, KD-35, and DT-54 tractors.

This data may be obtained in any workshop equipped with a KO-1608 (TA-55-VIM) stand having a revolution counter, VNTS-2 scales for weighing fuel, and a KP-1069 (TA-6-VIM) instrument. To measure surplus displacing force developed by the governor and transmitted to the pump plunger, 3-5-kilogram spring scales are used.

In recording the characteristics of fuel apparatus, the fuel tank on the stand should always contain approximately the same amount of fuel since a change of more than 50 millimeters in the fuel level will have a marked effect on the work indexes of the fuel-feeding apparatus.

Fuel used for control testing of the apparatus should be not only clean, but also of identical quality /For each series of tests/ since slight changes in fuel quality, e.g., viscosity, affect the results of the tests. Constant temperature of the fuel and the apparatus must be maintained throughout the control tests. It is recommended that the tests be carried out at a temperature of 20 degrees centigrade and performed two or three times.

Samples should be weighed, when performing a test twice, to an accuracy of one gram. The test should last one minute when the pump is rotating at more than 400 revolutions per minute and 2 minutes when the pump is rotating at less than 400 revolutions per minute. The number of revolutions must be measured to an accuracy of 10 per minute. The stroke of the plunger must be measured to an 0.05-millimeter accuracy.

All tests should be conducted with high-pressure injectors and pipes. The injector and pipes of one pumping element, given the same number of revolutions of the pump and the same position of the pump plunger, should have equal productivity for each series of tests, with variations no greater than 3-5 percent. If the variation in productivity is greater than this, the high-pressure injector and pipes of the stand are not suitable for control tests.

- 1 -

RESTRICTED

CLASSIFICATION RESTRICTED

[illegible]

RESTRICTEDRESTRICTED

STAT

IndexesS-65S-80KD-35DT-54

I. Injectors

Quality of spraying in the 80-150 atm pressure range	Absence of a stream of unatomized fuel; clean cut-off.			
Spraying angle, in deg	15-20	15-20	13-17	13-17
Pressure of fuel injection, in atm (plus or minus 2.5 atm)	120	120	120	120
When pressure range, in atm, is: hermetic seal (time it takes pressure to fall), in sec, minimum	200-160	200-160	200-160	200-160
Productivity, in g/min, when testing with one pumping section (normal rpm, full stroke of the plunger)	10-12	10-12	9	9
Variations in fuel feed for one set of injectors, in g/min, maximum	70-88	75-95	35-50	45-65
	3	3	2	2

II. Fuel - Feed Pumps and Filters

Productivity, in kg/min, without filters, with normal rpm of the pump drive shaft, and without counterpressure	1.8-2.5	3.7	3.2	3.0
Productivity, in kg/min, without filters, with a counterpressure of 0.5 atm	1.4-1.6	2.9	2.4	2.2
Productivity, in kg/min, without filters, at 200 rpm, without counterpressure	1.0	1.6	0.9	0.9
Productivity, in kg/min, without filters, at 200 rpm, with a counterpressure of 0.5 atm	0.25	0.9	0.7	0.7
Productivity, in kg/min, when connected with filters, with normal rpm and without counterpressure	1.2-1.5	2.2	2.6	1.8
Productivity, in kg/min when connected with filters, with normal rpm and a counterpressure of 0.5 atm	0.6-0.8	1.3	2.0	1.2

- 2 -

RESTRICTED**RESTRICTED**

RESTRICTED **RESTRICTED**

STAT

<u>Indexes</u>	<u>S-65</u>	<u>S-80</u>	<u>KD-35</u>	<u>DT-54</u>
Productivity, in kg/min, when connected with filters, at 200 rpm, and without counterpressure	0.6	1.0	0.8	0.7
Productivity, in kg/min, when connected with filters, at 200 rpm, and a counterpressure of 0.5 atm	0.2	0.5	0.6	0.5

III. P u m p

Point at which spraying of fuel begins, according to the angle of rotation of the pump cam shaft (according to calibration of the disk on the TA-55-VIM stand), in deg	2-3	3-5	I: 194-197 II: 104-107 III: 284-287 IV: 14-17	I: 187-190 II: 97-100 III: 287-290 IV: 7-10
--	-----	-----	--	--

Quality of performance

Variation in one pump: more than 0.5 degrees for all types of pump

Plunger stroke (in mm)	12.5-13.5	13.0(32)	10.5-11.0	10.5-11.0
Full fuel feed by sections of the pump with injectors attached, at normal speeds, in g/min	72-84	77-95	35-45	50-62
Inequality of feed for the whole pump, in %	2	2	2-4	2-4
Fuel feed with 0.5 stroke of the pump plunger, at normal speeds, in g/min	25-40	42-68	19-32	26-42
Inequality of feed for whole pump, in %	Up to: 45	Up to: 45	Up to: 50	Up to: 50
Full fuel feed, at 200 rpm, in g/min	30-40	30-35	8-12	14-20

- 3 -

RESTRICTED**RESTRICTED**

RESTRICTED**RESTRICTED**

STAT

<u>Indexes</u>	<u>S-65</u>	<u>S-80</u>	<u>KD-35</u>	<u>DT-54</u>
Inequality of feed for whole pump, in %	5-6	5-6	7-8	7-8
IV. Governor				
No of rpm of pump at instant fuel feed is turned on	425 ⁺¹⁰	520 ⁺²⁰	700 ⁺¹⁰	650 ⁺¹⁰
No of rpm of pump at instant fuel feed is fully on, maximum	470 ⁺¹⁰	600 ⁺²⁰	780 ⁺¹⁰	730 ⁺¹⁰
Force, in kg, needed to displace plunger longitudinally when operating at normal speeds	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Excess displacing force of governor transmitted to pump plunger when shaft rpm are increased or decreased 100 beyond normal, in kg	--	2.0	minimum: 1.6	minimum: 1.6

- E N D -

- 4 -

RESTRICTED**RESTRICTED**